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(52) UK CL (Edition R )

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U1S S1125

(56) Documents Cited

GB 2304553 A GB 2303296 A GB 2280361 A  
GB 2085717 A FR 002646068 A US 5530981 A  
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(58) Field of Search

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INT CL<sup>7</sup> A46B  
Online : WPI, EPODOC, PAJ.

(74) Agent and/or Address for Service

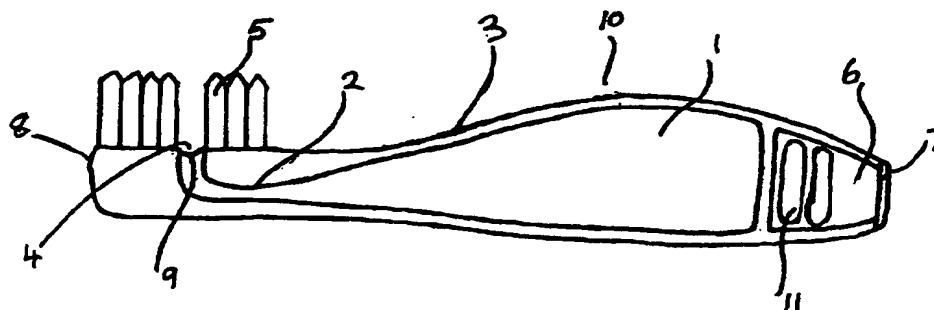
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(54) Abstract Title

**Disposable reservoir toothbrush**

(57) A disposable reservoir toothbrush has a handle which when squeezed urges paste to bristles 5 via valve 9, which may be of slit rubber. Mouthwash or breath freshener tablets may be stored in compartment 6 under flip top 7, and a tongue cleaner may be incorporated. The handle reservoir may comprise a compartment with a hinged lid for insertion of a paste sachet. Alternatively, paste compartments may be snapped off the handle end successively for application of paste to the bristles.

Fig 1



The claims were filed later than the filing date but within the period prescribed by Rule 25(1) of the Patents Rules 1995.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

GB 2 343 619 A

Fig 1

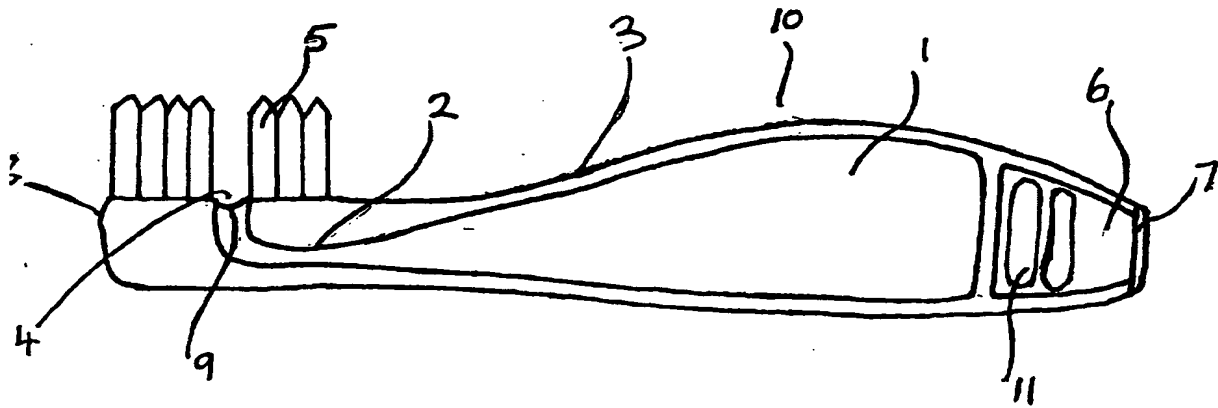


Fig 2

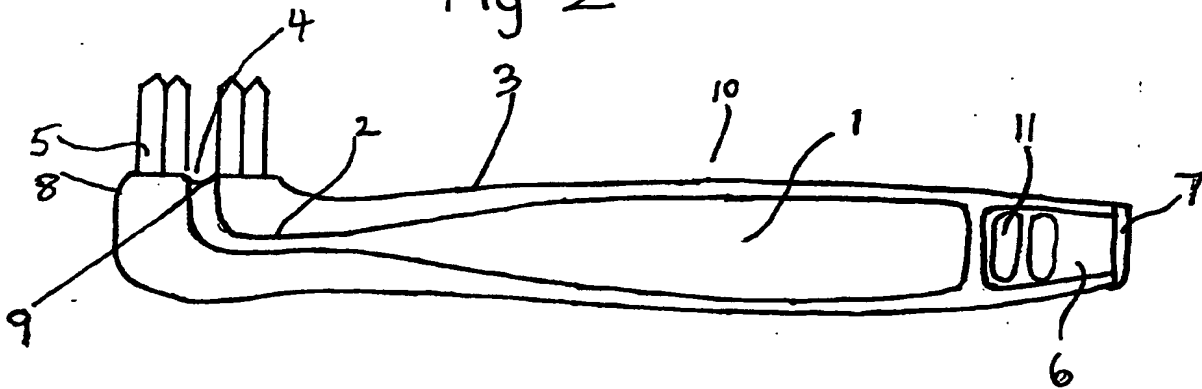
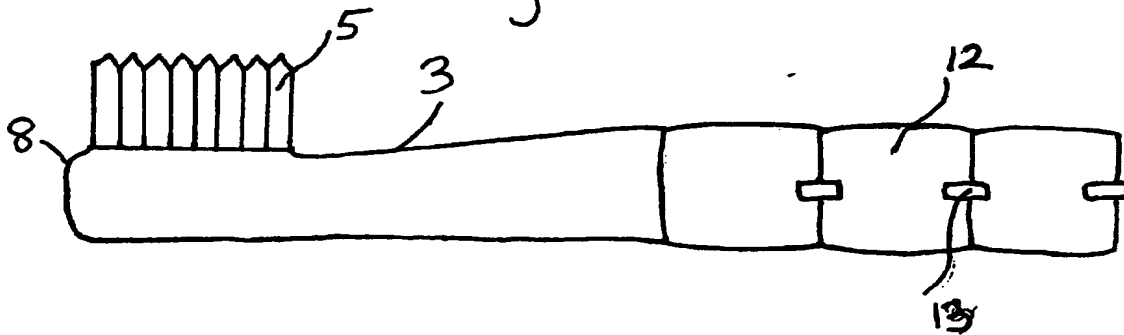


Fig 3



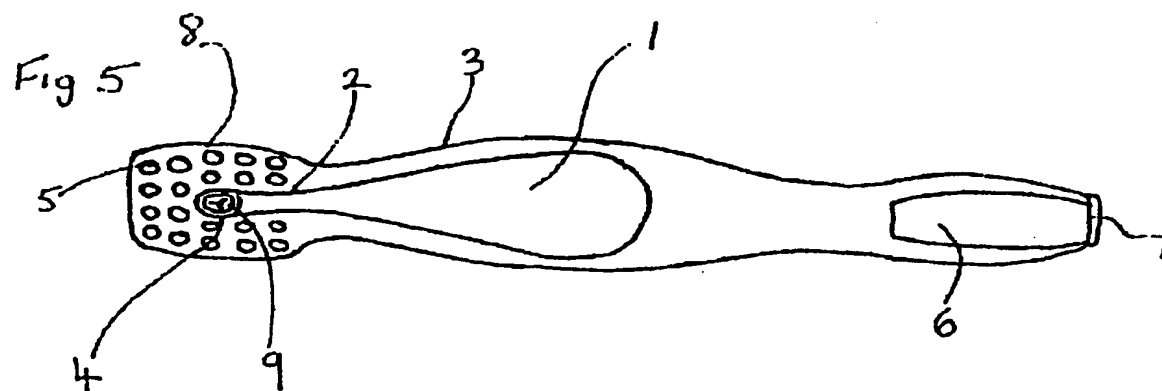
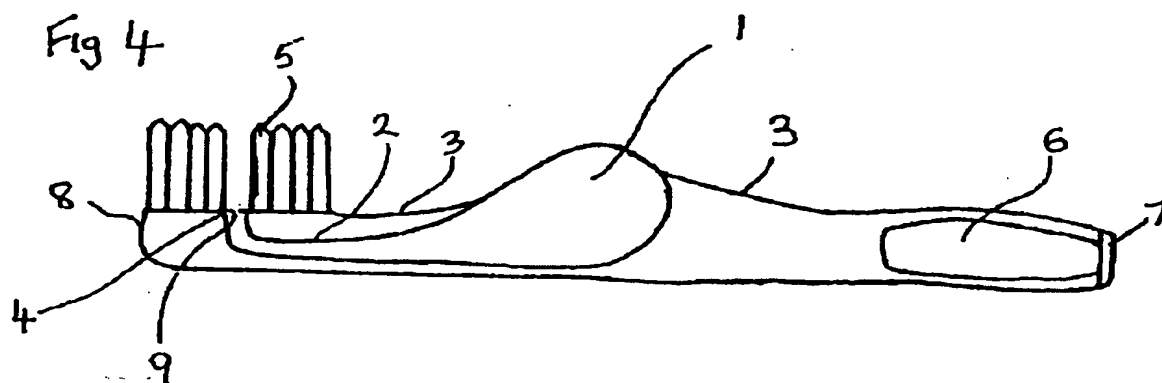


Fig 1A

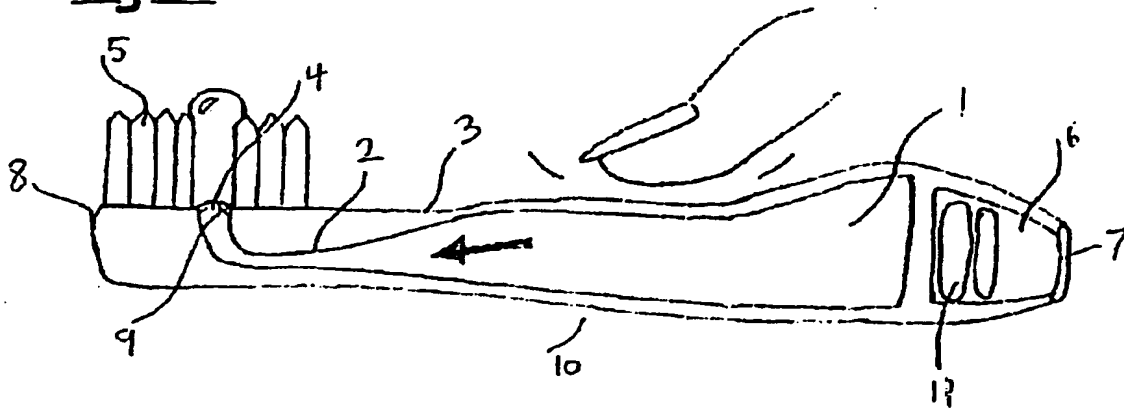


Fig 2A

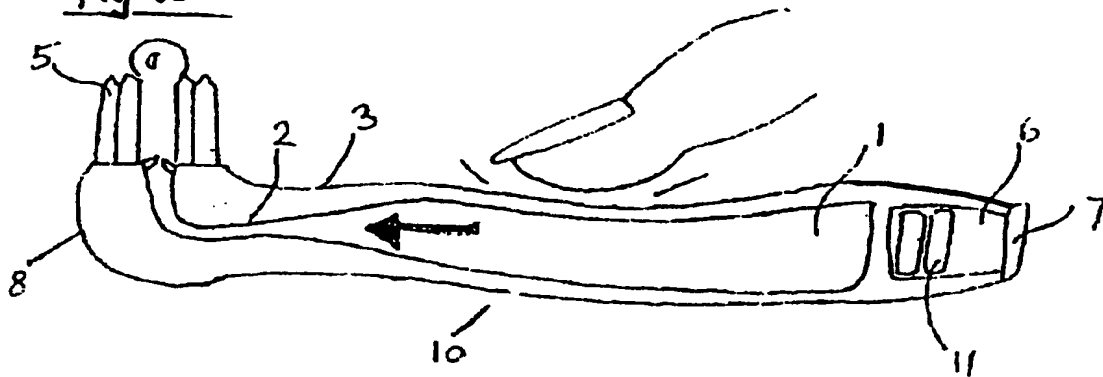


Fig 2B

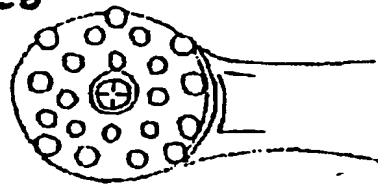
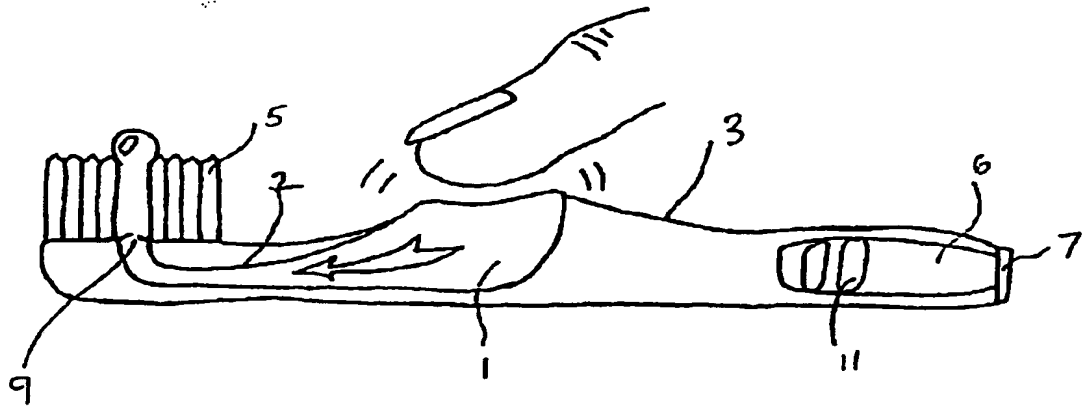
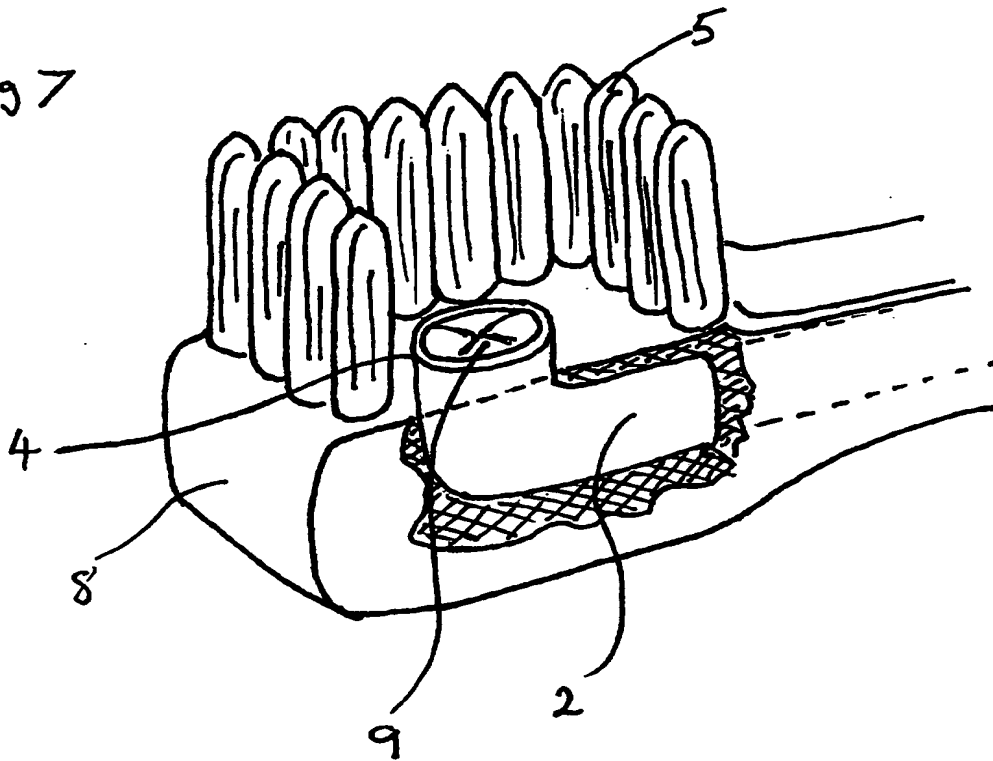


Fig 6



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fig 7



6/8

Fig 8

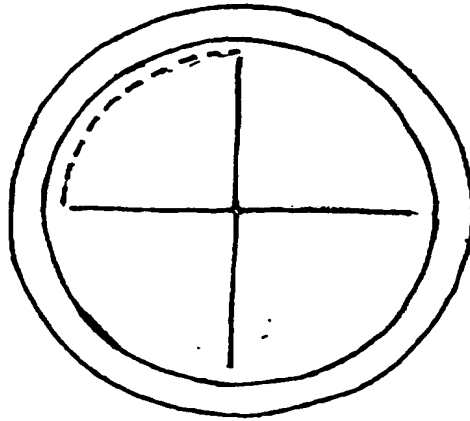


Fig 9



Fig 10

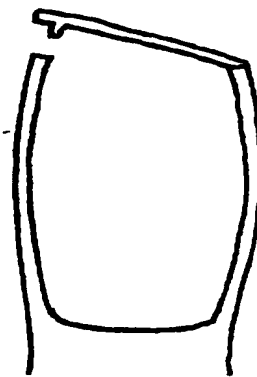
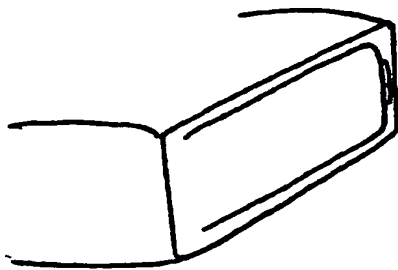


Fig 11

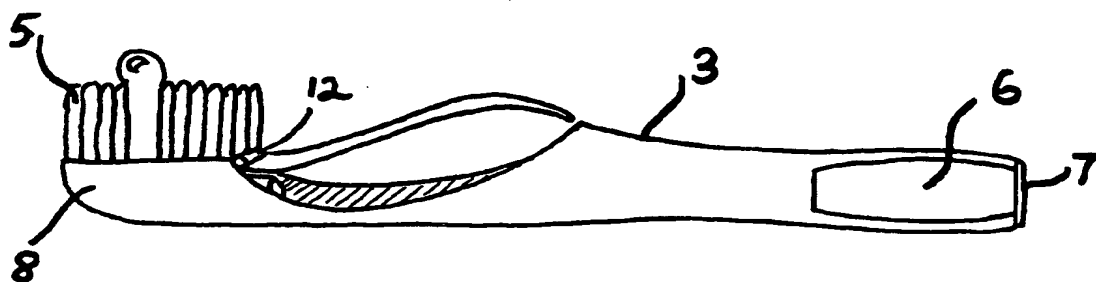
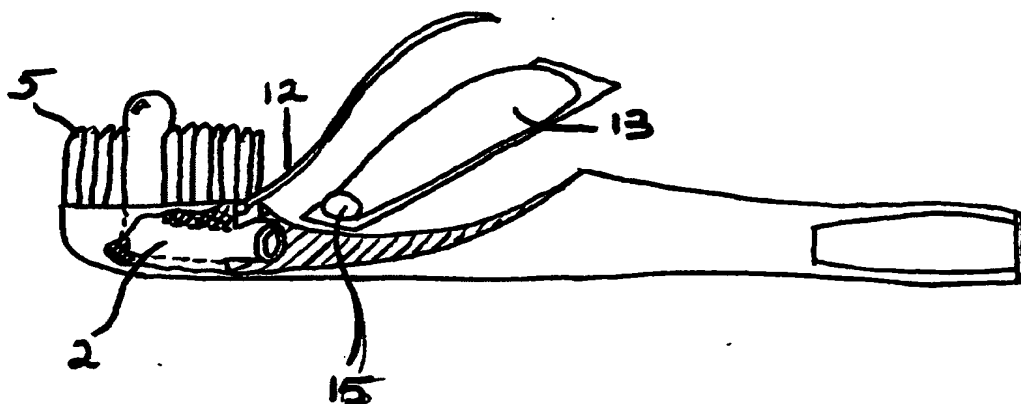


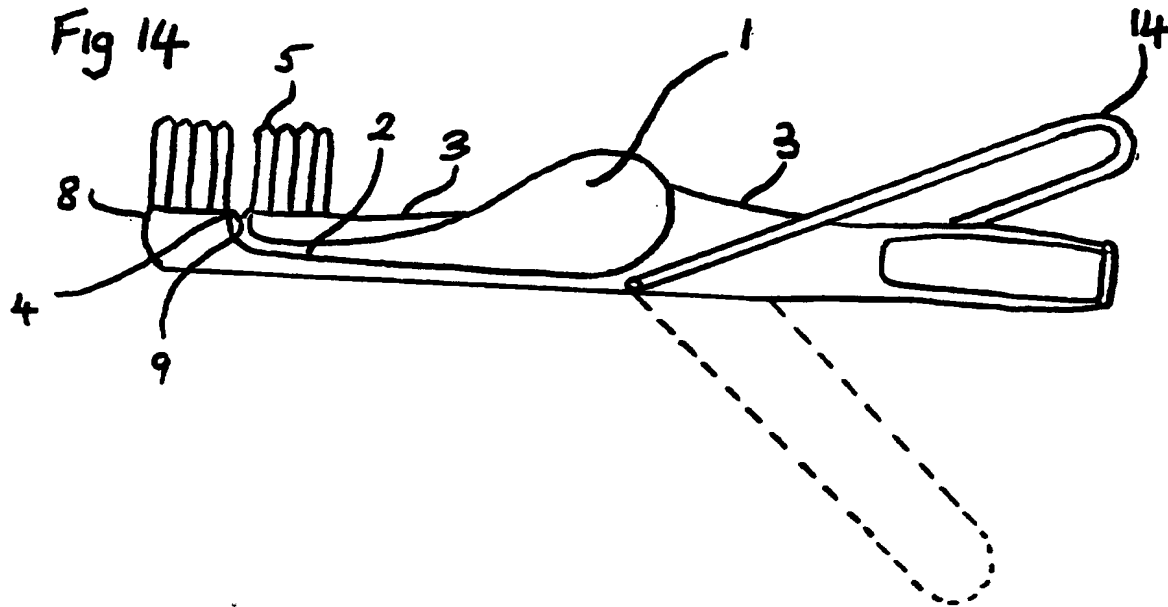
Fig 12



Fig 13







**Disposable Toothbrushes Integrating Toothpaste  
& Effervescent Mouthwash**

The present invention relates to apparatus and methods used in the field of dental and oral hygiene. More specifically it relates to integrating a toothbrush, toothpaste and mouthwash in one single unit. The whole unit is then disposable.

The necessity to use toothpaste, toothbrush and mouthwash for oral hygiene has long been established. Indeed there have been countless designs employed. The common procedure is to use a ridged design of toothbrush upon which a set amount of tooth cleaning substance is placed on the top of brush bristles. This cleaning substance is from a separate container. In order to further the process of dental hygiene a mouthwash is commonly used meaning that a third item has to be remembered.

The object of this said invention is to brush and clean teeth and to freshen breath after brushing. To remove plaque and bacteria from the mouth, this invention provides a disposable unit for dental hygiene.

The purpose of the said invention is to eliminate the tedious task of having to employ three items in order to brush and clean the teeth, and freshen the breath after brushing this has been the desire and objective of many people and cultures for a long period of time.

The said invention is of easy portable size this can be varied depending on its retail outlet and the length of time that the toothbrush will be used for. A four-inch long disposable unit will only need a small reservoir of tooth cleaning substance to last up to a few days. Where as general domestic house hold users will need longer use before disposing. Therefore the design hereby described can be varied and adapted according to its market place.

The invention here mentioned makes easier the process of packing dental hygiene equipment for travelling purposes. You have only one item to pack. This invention therefore eliminates the need to carry separate bulky toothpaste and mouthwash containers when taking holidays or any other like journeys.

The said invention being disposable is more hygienic. It does not allow bacteria to linger around the bristles week after week. It eliminates the build up of bacteria around the top of the toothpaste tubes when people forget to replace the cap. Packing for travel is easier and it increases the regular changing of the brush heads ensuring constant effectiveness of the brushes.

The life span of a conventional toothbrush is around 12 weeks. This depends on the quality of the bristles and the amount of pressure the user enforces and how often it is used

and how many teeth they have in the mouth. Many people do not judge this time correctly and maybe using their toothbrushes when the brush can no longer be working to its best ability. Therefore, the present invention that can be adapted or designed for household use is a good indicator of when to change our toothbrush head in order to ensure maximum performance from the bristles. Once the unit is empty it can be discarded and a new one bought.

The flow of tooth cleaning substance can be controlled via a valve made to cover the aperture in the centre of the head of the toothbrush, at the base of the bristles, this is the outlet for toothpaste from the reservoir which is incorporated into the handle. The size of the reservoir containing the toothpaste can vary accordingly, for only a few days use, or a calculation of the amount of toothpaste required for cleaning the teeth sufficiently for up to 12 weeks, as stated by the dental hygiene professionals.

Preferably the whole unit can be made from plastic materials of varying thickness, the thicker areas making up the ridged neck and head. The reservoir walls can be thinner, allowing the body of the design to be pressed; the material must be such that the body is able to regain its original shape. Also a separate sachet containing toothpaste can be inserted into the body of the toothbrush. With all of the designs the toothpaste is transported to the head of the brush via the orifice or channel in the brush neck.

The amount of toothpaste released onto the bristles can be controlled or restricted by the use of a valve covering the aperture in the toothbrush head.

Preferably the bristles of the toothbrush are made out of a nylon material. At the bottom of the handle of the toothbrush is incorporated a small compartment 6. Herein, is held an amount which is varying of tablet form mouthwashes. The purpose of the here mentioned tablets are to enhance the freshening of the mouth after brushing and to further protect against plaque and bacteria.

The compartments can store small capsules of liquid mouthwash or effervescent tablet form, as mentioned above or they could be simply breath fresheners.

A further more detailed description of the here mentioned invention is now described with reference to the accompanying drawings.

Fig 1,2,3, & 4 show varying designs of disposable toothbrushes.

Fig 1 & 2 comprises of the plastic external layer of varying thickness, the handle incorporates a reservoir to hold a tooth cleaning substance. From the reservoir 1 to the brush head 8 there is an orifice or channel 2.

The body of the toothbrushes shown in figs 1 & 2 can be depressed as shown in figs 1a & 2a on page 7.

On depression the toothpaste in reservoir 1 will move along orifice 2 up to the head of the toothbrush 8 and through the aperture 4 found in the centre of the brush head. The toothpaste will enter at the base of the bristle 5 and move upward to the top of the bristles.

The amount of toothpaste released can be controlled by valve 9, covering the aperture 4 in the head of the toothbrush 8. When depression of the body of the toothbrush 10 has ceased, the valve 9 will close and stop toothpaste from flowing this is to do with pressure.

The valve 9 is made from a very pliable rubber with a cross cut out of the middle as shown in fig 7. This valve covers the aperture 4 as the toothpaste is forced along channel 2. It forces the valve 9 to open when the pressure is released from the handle. The body of the toothbrush 10 and the reservoir 1 regains its original shape. The toothpaste is sucked back slightly and the valve 9 is pulled close.

Fig 1 shows a slightly more filled reservoir 1, and an oblong or oval head 8. Fig 1a shows a working diagram of fig 1.

Fig 2 shows a rounded head design. Fig 2a shows a working diagram of fig 2.

Fig 3 shows a disposable toothbrush side view; half of the toothbrush is solid plastic material 3, with nylon bristles 5 attached to the head 8. The handle of the toothbrush is made of three compartments 12 containing tooth-cleaning substance. Each compartment 12 can be snapped from the handle at the point 13. The toothpaste contained within the compartment 12 can then be squeezed onto the bristles of the toothbrush.

Figs 4 and 5 comprise of a bubble reservoir 1, leading up to the head of the toothbrush 8. A ridged plastic handle containing a compartment 6 to store mouthwashes or breath fresheners as described on page 3 with a flip top lid 7. The reservoir 1 is pressed down as shown in Fig 6. The toothpaste then moves up the orifice 2 and through the valve 9 to the bristles of the toothbrush. When the pressure is released the toothpaste is sucked back slightly and the valve 9 is pulled closed. This restricts any further flow of the toothpaste.

Fig 8 shows the valve number 9 in the drawings it comprises of a piece of rubber material, which is pliable. The cross lines in the middle of the circular valve shown in Fig 8 indicates where you would cut to make an opening to allow the toothpaste through and will close to the original position when the pressure exerted on the reservoir 1 is released. It is situated at the base of the bristles 5 over the aperture 4.

The tablet shown in Fig 9 is a tablet form mouthwash. It works on the principal that once dropped into water the tablet will effervesce and dissolve in the water leaving a mouth wash to rinse the mouth.

Fig 10 shows the end of the toothbrush it has a small compartment incorporated into it 6. Then secured by a flip top 7, containing mouthwash tablets marked 11.

All of these disposable toothbrushes shown can be adapted and designed with added fixtures, note Fig 11 showing hinged section 12 for application of a separate sachet containing toothpaste Fig 12.

Fig 13, showing placement of sachet into body of toothbrush, piercing on contact with orifice 2 at sealed end 15.

Hinged section 12 snaps shut securing sachet 13.

Also Fig 14 showing added tongue cleaner marked 14, the purpose of which would be to clean the tongue from back to front with light strokes. This being made from the same plastic material as the toothbrush body or indeed any material found to be more suitable.

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### Claims

1. A Disposable toothbrush comprising of a valved head, a body incorporating a reservoir for toothpaste and a compartment for mouthwash tablets and or tongue scraper, either as a whole unit or the body being adapted to allow separate toothpaste reservoirs or sachets to slide into the body via a hinged section.
2. A toothbrush as claimed in claim 1 whereby toothpaste is directed to the head of the brush by means of pressure exerted on the toothpaste reservoir.
3. A toothbrush as claimed in claim 1 or claim 2 whereby when pressure is exerted on the reservoir toothpaste is pushed forward through an orifice towards a valve incorporated in the head of the toothbrush thus controlling the flow of toothpaste.
4. A toothbrush as claimed in claim 2 or claim 3 whereby the flow of toothpaste is controlled by a valve, which allows forward flow onto the bristles, yet restricts backward flow.
5. A toothbrush as claimed in any preceding claim wherein the body is adapted to include a separate sachet of toothpaste secured in the body by a hinged section.
6. A toothbrush as claimed in any preceding claim wherein the body is adapted to hold mouthwash tablets in a separate compartment accessible via a hinged lid at the end of the body.
7. A toothbrush as claimed in any preceding claim wherein the body is adapted to include a tongue cleaner attached externally to the body of the toothbrush at the back by means of a pin or hinge.
8. A toothbrush substantially as described herein with references to figures 1-13 of the accompanying drawings.



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to

Application No: GB 9920226.9

Examiner:

G R A H A M  
WERRETT

Claims searched: 1-8

Date of search: 10 March 2000

### Patents Act 1977

### Search Report under Section 17

#### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): A4K.

Int Cl (Ed.7): A46B.

Other: Online : WPI, EPODOC, PAJ.

#### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2304553 A (BILSON) see e.g. Figure 2.	1.
X	GB 2303296 A (OLIVE) see e.g. disposability, page 1, line 1, & squeeze handle, page 2 " B ".	1.
X	GB 2280361 A (FORTUNE) see e.g. disposability, page 1, line 4, & pivoted cover 64 for paste capsule 60, Figure 5.	1.
X	GB 2085717 A (CAMPBELL) see valves in Figures 16-21.	1.
X	US 5530981 (CHEN) see e.g. tongue scraper 30, pivot 22.	1.
X	US 5033898 (WILLIAMS) see e.g. squeeze handle 19, Figure 1, & sponge 27 forming valve.	1.
X	FR 2646068 A (LOUIN) see tablet storing described in accompanying abstract.	1.

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